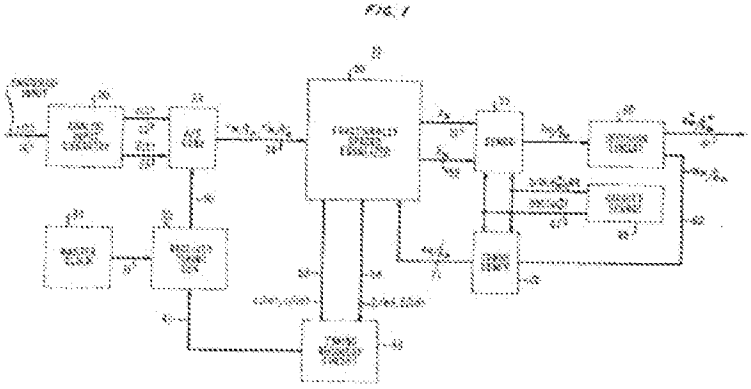
## REMARKS

Claims 11-19 are pending in this application, of which claims 11 and 14 are independent.

The Examiner rejected the claims under 35 USC 103(a) for obviousness over *Gitlin* (US 4,344,313) in view of *Langberg* (US 6,421,377). The Applicant traverses this rejection for at least the following reasons.

Initially, the Applicant submits that a person of ordinary skill in the art would not have been motivated to combine *Gitlin* with *Langberg*.



*Gitlin* (FIG. 1 of which is reproduced above) discloses a timing recovery circuit to compensate for a timing drift of a receiver. The Examiner appears to suggest that *Gitlin*'s timing recovery circuit includes an analog/digital converter 25 for sampling signals at twice the signal rate (column 4, lines 25-27). The Examiner also appears to regard the fractionally spaced equalizer 50 as receiving the signal sampled at twice the signal rate and providing an output at the signal rate (column 4, lines 44-48).

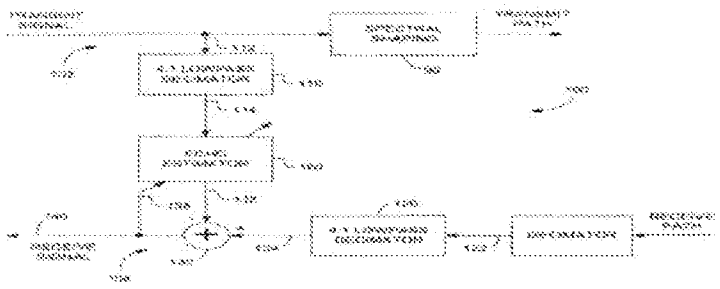


FIG. 3

*Langberg* (FIG. 3 of which is reproduced above), on the other hand, discloses systems for echo cancellation over asymmetric spectra, specifically, featuring an echo canceler 180.

In establishing a case of obviousness, the initial burden is on the Examiner to provide some suggestion of the desirability of doing what Applicant has invented. *See* MPEP 2142. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (BPAI 1985). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." *Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc.*, 73 F.3d 1085, 1087 (Fed. Cir. 1995).

The Examiner fails to meet this initial burden. The Examiner states that the motivation to combine *Gitlin* with *Langberg* would be to "come up with a very adaptive echo canceller that can recover the original transmitted signal cost effectively." However, neither reference expressly or impliedly suggests the Examiner's alleged motivation. Moreover, *Gitlin* teaches timing recovery circuit for drift compensation. Drift compensation has nothing to do with echo cancellation. Thus, the Examiner does not provide a convincing line of reasoning since there would be no reason for one of ordinary skill to have ever even considered modifying a drift compensation circuit, such as *Gitlin*'s, to perform echo cancellation of received signals as disclosed in *Langberg*. Accordingly, since the motivation to combine is not found in the references and the Examiner does not provide a convincing line of reasoning, the only possible source for the alleged motivation is the Applicant's own disclosure and claims. This is impermissible.

Even if one were to combine *Gitlin* with *Langberg*, one would still not arrive at Applicants' invention. Neither reference includes any discussion on how to arrange the analog/digital converter 25 and the fractionally spaced equalized 50 of *Gitlin* with the echo estimator 180 of *Langberg*. In particular, it would not have been obvious to arrange both the analog/digital converter 25 and the fractionally spaced equalizer 50 on a signal path on one side of *Langberg*'s echo canceler 180. There is the possibility, contrary to the arrangement in

Applicant's invention, to arrange one of the converter 25 or equalizer 50 on one side of the echo canceler 180 and the other on the other side of the echo canceler 180.

Moreover, the Applicant submits that there is another reason why a person of ordinary skill in the art would not have been motivated to combine *Gitlin* with *Langberg*. The Examiner's proposed modification would change a basic principle of operation of *Langberg*. *See* MPEP 2143.02(VI); *In re Ratti*, 270 F.2d 810 (CCPA 1959). In particular, at column 5, line 65 to column 6, line 9, *Langberg* clearly states that:

> A first decimator 110 is disposed between the transmit path 102 and the echo canceler 180, whereby the first decimator 110 filters an incoming signal 112 having a first sampling rate on a said transmit path 102 and emits a signal output 114 at a second, reduced sampling rate. A second decimator 120, preferably identical to said first decimator 110, is disposed along said receive 104 path whereby said *second decimator 120 filters an incoming 122 signal having a sampling rate approximately equal to the first sampling rate, to emit a signal output 124 at a reduced sampling rate, approximately equal to the second sampling rate.*

In sum, *Langberg* teaches that the sampling rate on the receive line and the sampling rate on the transmit line are "approximately equal" in part because the respective receive line and transmit line decimators are "identical." This result would not occur if one arranged the analog/digital converter 25 and the fractionally spaced equalized 50 of *Gitlin* with the echo estimator 180 of *Langberg*. Indeed, no matter the arrangement, the sampling rate on the receive line and the sampling rate on the transmit line would *not be* "approximately equal" because the respective receive line and transmit line decimators would *not be* "identical."

For at least these reasons, the obviousness rejection over *Gitlin* in view of *Langberg* should be withdrawn.

Notwithstanding the lack of a motivation to combine, the Applicant submits that *Gitlin* in view of *Langberg* fail to disclose each claim limitation. For example, neither *Gitlin* nor *Langberg* discloses "equalizing the echo-compensated received signal," as recited in claim 11. The Examiner acknowledges that *Gitlin* fails to disclose this feature. However, the Examiner alleges that *Langberg* addresses *Gitlin*'s deficiency.

In FIG. 3 of *Langberg* (see above), the echo-compensated received signal corresponds to the signal output from the adder 130. Clearly there is no equalizer for signals output from the adder 130.

Moreover, not only is *Langberg* silent on equalizing the echo-compensated received signal, but *Langberg* appears to teach away from this feature. The Examiner points to column 8, lines 30-35 of *Langberg* as teaching "equalizing the echo-compensated received signal." In particular, *Langberg* states:

> In addition, the echo cancellation is achieved entirely in the time domain, thereby *untangling* the echo canceler from the equalizer and eliminating the necessity of symbol synchronization as required in the hybrid time and frequency domain approach.

*Langberg* teaches "untangling" an echo canceler from the equalizer. Thus, instead of teaching the equalizing of echo-compensated received signals, *Langberg* teaches the opposite, namely "untangling" output from the echo canceler from the equalizer.

For at least these reasons, independent claim 11 is patentable over *Gitlin* in view of *Langberg*.

Independent claim 14 is directed toward a receiver arrangement for a duplex transmission unit including an "equalizer for equalizing the echo-compensated received signal." For at least the reasons discussed in connection with claim 11, claim 14 is also patentable over *Gitlin* in view of *Langberg*.

Each dependent claim is patentable for at least the same reasons as its corresponding independent claim.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Please apply any charges to deposit account 06-1050, referencing Attorney Docket No. 12816-044US1.

Respectfully submitted,

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Kevin Su
Reg. No. 57,377

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906